

ABSTRACT OF THE DISCLOSURE

A lamination of metal wire layers forms an electromagnetic isolation structure. The metal wire layers are connected with each other by vias, so that a metal fence having a laminated structure is formed. The metal fence is provided so as to surround an element (e.g. a spiral inductor) that generates an electromagnetic field in an integrated circuit. The metal wire satisfies $d \leq \lambda/8$, $WF \geq 5\delta$, and $L \leq \lambda/20$, where δ is a skin depth of an electromagnetic wave, c is a velocity of light, f is an operating frequency of the integrated circuit, d is a lateral-direction size of a metal-fence region, WF is a surrounding-line width of the metal fence, L is an interval between the vias, and $\lambda = c/f$ is a wavelength of a signal. With this arrangement, it is possible to decrease electromagnetic coupling noises and coupling noises caused via the substrate.